

REMARKS/ARGUMENTS

Reconsideration of this application in light of the above amendments and following comments is courteously solicited.

Previously submitted independent claim 11 has been extensively amended. The distinctive features of the semiconductor device of amended independent claim 11 are as follows:

1. First semiconductor stack (7) has first and second semiconductor elements (1, 2) layered and mounted in turn on support plate (5);

2. Second semiconductor stack (8) has third and fourth semiconductor elements (3, 4) layered and mounted in turn on support plate (5);

3. Control circuit (13) controls switching operation of first to fourth semiconductor elements (1 to 4) so that first and fourth semiconductor elements (1, 4) and second and third semiconductor elements (2, 3) are alternately switched, and thereby when one of first and second semiconductor elements (1, 2) and one of third and fourth semiconductor elements (3, 4) are turned on together, the other of first and second semiconductor elements (1, 2) and the other of third and fourth semiconductor elements (3, 4) is turned off together; and

4. First and second semiconductor elements (1, 2) are electrically connected to each other, and third and fourth semiconductor elements (3, 4) are electrically connected to each other.

This arrangement ensures an effective prevention of local excessive heating in the semiconductor device, although heavy

current runs through first to fourth semiconductor elements (1 to 4), while prohibiting deterioration in electric property of the device, extending service life of the device and improving reliability of the device.

New independent claim 19 is characterized by the following features:

1. First semiconductor stack (7) has first and second semiconductor elements (1, 2) layered and mounted in turn on support plate (5);
2. Second semiconductor stack (8) has third and fourth semiconductor elements (3, 4) layered and mounted in turn on support plate (5); and
3. Mounted between first and second semiconductor stacks (7, 8) is the control circuit (13) which controls switching operation of first to fourth semiconductor elements (1 to 4).

Mounted away from each other a longer distance than a size of control circuit (13), are first and second semiconductor stacks (7, 8) which, therefore, can release heat to the outside in order to prevent local heat concentration and thereby excessive elevation of temperature therein.

New independent claim 23 features the following:

1. First semiconductor stack (7) has first and second semiconductor elements (1, 2) layered and mounted in turn on support plate (5);
2. Second semiconductor stack (8) has third and fourth semiconductor elements (3, 4) layered and mounted in turn on support plate (5);
3. Support plate (5) has side surfaces in parallel to

the arranged direction of lead terminals (20); and

4. A plurality of lead terminals (20) are connected to each outside of side surfaces of support plate (5) away from first and second semiconductor stacks (7, 8).

Left and right lead terminals (20) are connected to support plate (5) symmetrically or in mirror image, first and second semiconductor stacks (7, 8) can release heat from lead terminals (20) to the outside of the device in a balanced diffusion.

None of the prior art references cited and applied by the Examiner namely, U.S. '313, U.S. '507 and/or U.S. '654 teach or suggest the features of the independent claims as discussed above.

None of the prior art references teach the control circuit as claimed in independent claim 11 in combination with the formed H-type bridge circuit. Claim 11 is clearly patentable over the cited prior art.

The cited prior art fails to teach the mounting of the control circuit between the first and second semiconductor stacks. As discussed above there is a particular advantage to this arrangement vis-à-vis released heat. This feature is not shown, disclosed or rendered obvious by any of the prior art references.

With regard to new independent claim 23 the connection of the lead terminals to the support plate symmetrically or a mirror image is not at all disclosed in any of the prior art references. This particular structure again leads to the advantage of heat dissipation.

In light of the foregoing, it is respectfully submitted that all of the claims as pending define over the cited and

applied prior art and the early issuance of a Notice of allowance is respectfully requested.

An earnest and thorough attempt has been made by the undersigned to resolve the outstanding issues in this case and place same in condition for allowance. If the Examiner has any questions or feels that a telephone or personal interview would be helpful in resolving any outstanding issues which remain in this application after consideration of this amendment, the Examiner is courteously invited to telephone the undersigned and the same would be gratefully appreciated.

It is submitted that the claims as amended herein patentably define over the art relied on by the Examiner and early allowance of same is courteously solicited.

If any fees are required in connection with this case, it is respectfully requested that they be charged to Deposit Account No. 02-0184.

Respectfully submitted,

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